

Final Report

NAC/ISDA 2008-1

Managing New and Emerging Virus Threats to the Green Industry

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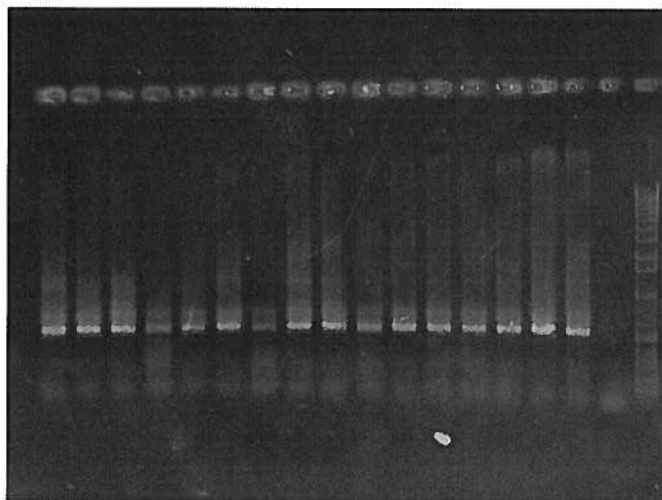
Several new and/or re-emerging viruses of nursery/ornamental crops were identified and characterized during the project period. Research would continue in 2009 to complete some of the objectives.

Research was focused on the identification, biological characterization and developing diagnostic methods for selected viruses of nursery crops that are either new in the region or becoming increasingly important. These included Canna yellow mottle virus, Hosta virus X, and Streptocarpus flower break virus (SFBV).

Streptocarpus flower break virus (SFBV):

Several annual and perennial species were tested for their susceptibility to SFBV. First attempts to identify possible hosts for SFBV (other than streptocarpus) were unsuccessful. We are working with a major nursery plant producer to test more hosts to determine the host range. This work will continue in 2009 since nursery industry is very interested in the host range of this virus.

SFBV contains an RNA genome, approximately 6,000 nucleotides in length. To better understand the molecular properties of the viral genome, 3' half of the viral RNA was cloned and sequenced. This includes the coat protein gene. Based on the sequence information, we have developed a rapid and sensitive molecular test (RT-PCR) for rapid and sensitive virus detection. Results of testing of streptocarpus samples from a grower using the RT-PCR test are shown below.



Using the RT PCR test developed from above, we are working with two major US nursery wholesalers/growers to identify streptocarpus stocks that are infected and use those stocks to produce tissue-culture plants to establish virus-free propagating material. Availability of a rapid and sensitive virus detection method (above) facilitates this objective.

Hosta virus X and Canna yellow mottle virus

Increasing incidence of Hosta virus X and Canna yellow mottle virus has been noticed in several commercial grower fields in the region. RT-PCR based, rapid and sensitive virus detection tests were developed and used to confirm the presence of these viruses. Following the confirmation, affected growers were advised of the virus management strategies to reduce the virus incidence.



Hosta virus X, first described in 1996, is increasing in incidence in the Pacific Northwest. In both images, a healthy leaf is on the left, with disease progression from left to right.



Symptoms of *Canna yellow mottle virus* on canna

Acknowledgements

Funding from the Idaho State Department of Agriculture, Nursery and Florist Advisory Committee-Idaho Nursery & Landscape Association is gratefully acknowledged.